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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,993	08/20/2003	Takeshi Yamakawa	241531US3	5146

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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CHEN, HUO LONG

ART UNIT	PAPER NUMBER
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2625

NOTIFICATION DATE	DELIVERY MODE
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08/26/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/643,993

Applicant(s)

YAMAKAWA ET AL.

Examiner

HUO LONG CHEN

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed on 06/20/2008 have been fully considered but are moot in view of the new ground(s) of rejection.

Applicant argues that Anzai only teaches a structure, in which a lens is directly attached to the housing by adhesive, and does not teach or suggest a fixing member other than the housing, as set forth in claim 1. Examiner disagrees with applicant's arguments because Anzai teaches the fixing members which are cylindrical support columns (col.4, lines 46 and 47). These cylindrical support columns are separately disposed and fixing the lens (col.4, lines 47 and 48). According to the Fig.3, the cylindrical support column (Fig.3, item 32) is not formed integrally with the mount (Fig.3, item 22).

Applicant argues that Anzai fails to disclose that the coefficient of thermal conductivity of the fixing member is lower than a coefficient of thermal conductivity of the optical housing, as set forth in claim 1. This argument is moot in view of a prior art by Itabashi (US 6,700,687) which teaches when the heat conductivity of the housing is smaller than the heat conductivity of the holding member holding the polygon scanner which is a heat source, heat from the polygon scanner is not easily transmitted to the housing and it is possible to effectively prevent the other respective optical components from being heated. Therefore, the holding member needs to be made of low heat conductivity material in order to reduce the transmitted heat to the housing from the heat source. For the same reason, the support columns of Anzai need to make of low

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heat conductivity in order to reduce the transmitted heat to the lens from the optical housing which is interpreted as the heat source. Having Anzai's lens mounting structure and then given the well-established teaching of Itabashi reference, it would have been obvious to one having ordinary skill in the art at the time of the invention that was made to modify Anzai's lens mounting structure reference with the knowledge of the heat conductivity taught by Itabashi reference to have Anzai's cylindrical support columns to be made with heat conductivity than Anzai's optical housing since doing so would be possible to effectively prevent the other respective optical components from being heated.

Applicant argues that Lam fails to teach that the fixing member is a separate member from the condensing lens, as set forth in claim 1. This argument has been addressed in Anzai as above.

Applicant argues that Lam fails to teach that the lens is fixed to the fixing member by ultraviolet radiations, as set forth in claim 1. This argument is moot in view of the previous presented prior art, Anzai (5,526,193). Anzai teaches the fixing members which are cylindrical support columns (col.4, lines 46 and 47) and the cylindrical support columns are fixed by the adhesive agents (Fig.3).

Applicant argues that Lam is silent as to whether the frame 91 is capable of transmitting ultraviolet rays, as set forth in claim 1. Examiner disagrees with applicant's arguments because the frame 91 is made of plastic (paragraph 48), it is known that the plastic is capable of transmitting ultraviolet rays. If the frame 91 is not able to transmit ultraviolet rays, how the adhesive can be cured by ultraviolet rays (Fig.15, and Fig. 16)?

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Applicant argues that Lam fails to disclose that the fixing member is smaller than the condensing lens, as set forth in claim 1. This argument is moot in view of the previous presented prior art, Anzai (5,526,193). Anzai teaches the fixing members which are cylindrical support columns (col.4, lines 46 and 47 and Fig.1, item 28, 30 and 32) which are smaller than the lens (Fig.1, item 20).

2. The document 2-64959 submitted on February 13, 2008 is considered now.
3. The document JP 2918921 submitted on November 13, 2007 is not considered because the copy of the document is missing.

#### ***Response to Amendment***

4. The amendment to the claim received on 06/20/2008 has been entered.
5. The amendments of claim 1 and the specification are acknowledged.

#### ***Information Disclosure Statement***

6. The document number **4-31107, and 57-63328** submitted on 06/20/2008 is not considered because it lacks English translation.

#### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 1 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anzai (5,877,903) in view of Tomohiro (JP 04-265919), Lam (US 2002/0006687), and Itabashi (US 6,700,687).

With respect to **claim 1**, Anzai teaches an image formation apparatus [a laser printer (col.1, line 7)], in which a light emitted from a light source is deflected towards a condensing lens, the condensing lens condenses the light and focuses the light on an image carrier, comprising:

an optical housing that houses the condensing lens [The lens (Fig.2, item 20) is attached to a mount (Fig.2, item 22) formed integrally with an optical housing (col.4, lines 34-36)];

a fixing member [regarding as the cylindrical support columns (col.4, lines 46 and 47)] that is fixed to the optical housing [since the mount (Fig.2, item 22) is formed integrally with an optical housing (col.4, lines 34-36), the mount is interpreted as part of the optical housing. The mount (Fig.2, item 22) comprises a plurality of support columns (col.2, lines 46-48). It is undoubtedly that the support columns are fixed to the optical housing since they are fixed to the mount (Fig.2, item 22) which is part of the optical housing];

the condensing lens is fixed to the fixing member [the lens is supported by and fixed to the lens mount through the support columns (col.2, lines 10-12)];

the fixing member [regarding as the cylindrical support columns (col.4, lines 46 and 47)] has an area that is smaller than an area of the condensing lens from a top plan view [the cylindrical support columns (Fig.1, item 32, 30, 28) have

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smaller area than the lens (Fig.1, item 20) from the top plan view (Fig.1)], the fixing member [regarding as the cylindrical support column (Fig.3, item 32)] being a separate member from the condensing lens and the housing [According to the Fig.3, the cylindrical support column (Fig.3, item 32) is not formed integrally with the mount (Fig.3, item 22), which is part of the optical housing (col.4, lines 34-36). The cylindrical support column (Fig.3, item 32) is not formed integrally with the lens (Fig.3, item 20)], and the fixing member [regarding as the cylindrical support columns (col.4, lines 46 and 47)] does not directly contact the condensing [the lens (Fig.3, item 20) does not directly contact with the support column (Fig.3, item 32), since the adhesive agent (Fig.3, item 34C) is placed between them];

ultraviolet cure adhesive [regarding as the adhesive agent (Fig.3, item 34C)] is applied between surfaces of the condensing lens and the fixing member such that the condensing lens is fixed to the fixing member using the ultraviolet cure adhesive [according to Fig.3, the lens (Fig.3, item 20) is fixed by the support column (Fig.3, item 32) by using the adhesive agent (Fig.3, item 34C) which is placed between them],

However, Anzai fails to teach that the fixing member is a single fixing member of the condensing lens, which is arranged at a position in a center of the lens. The fixing member is arranged to transmit ultraviolet ray there through. The ultraviolet cure adhesive is applied between the surfaces of the fixing member and the housing, and the condensing lens, the fixing member and the housing

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are fixed at the same time by irradiating ultraviolet rays in such a way that the ultraviolet rays transmit through the condensing lens, the ultraviolet cure adhesive and the fixing member, and a coefficient of thermal conductivity of the fixing member is lower than a coefficient of thermal conductivity of the optical housing.

Tomohiro teaches that the positioned lens is fixed by adhesion to housing at one point of the center part of the plane part of the lens (constitution).

Lam discloses using UV cure adhesive (Fig. 15, element 113) to attach a lens-and-frame assembly consisting of lens (Fig. 15, element 89) and frame (Fig. 15, element 91) to a lens shelf (Fig. 15, element 109, paragraph 0044). UV light is using to activate the UV cure adhesive (abstract). In addition, Lam further teaches that a frame structure (Fig. 15, element 91) is part of the IC ship package which is preferably a plastic molded package (paragraph 48, Fig. 17). Since Lam's frame structure is made of plastic, it is capable to transmit the UV light to activate the UV cure adhesive to fix both lens-and-frame assembly (Fig. 15, element 89) and a lens shelf (Fig. 15, element 109, paragraph 0044) together. Furthermore, examiner does not see the criticality of the fixing order to fix the condensing lens, the fixing member and housing together by irradiating ultraviolet rays. Also, it is well known that the condensing lens is either made of plastic or glass. Both plastic and glass are capable of transmitting the UV light to activate the UV cure adhesive. It is undoubtedly that the frame (Fig.15, item 91) is able to transmit ultraviolet rays because if the frame (Fig.15, item 91) is not

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able to transmit ultraviolet rays and then how the adhesive can be cured by ultraviolet rays and fixed the frame (Fig. 15, element 91) to a lens shelf (Fig. 15, element 109)?

Itabashi teaches that the heat conductivity of the housing is smaller than the heat conductivity of the holding member holding the polygon scanner which is a heat source, heat from the polygon scanner is not easily transmitted to the housing and it is possible to effectively prevent the other respective optical components from being heated. The holding member is interpreted as the intermediate element to connect the heat source and housing which does not want to absorb heat from the heat source. Therefore, the holding member needs to be made of low heat conductivity material in order to reduce the transmitted heat to the housing from the heat source. For the same reason, the support columns of Anzai need to be made of low heat conductivity in order to reduce the transmitted heat to the lens from the optical housing which is interpreted as the heat source.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the inventions of Anzai, Tomohiro, Lam, and Itabashi because doing so would reduce the numbers of the support columns and it would be possible to effectively prevent the other respective optical components from being heated since the support column is made of lower heat conductivity material.

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With respect to **claim 5**, which further limits claim 1, it is analyzed and rejected for the same reason set forth in the rejection of claim 1.

However, Anzai fails to teach that the fixing member is formed by molding glass and has an ultraviolet ray transmittance equal to or more than 50 percent.

Claim 5 is merely about the material for a fixing member to have a good ray transmittance in order to transmit the UV light to activate the UV cure adhesive. Examiner does not see how critical of the ultraviolet transmittance is equal to or more than 50 percent to affect the usage and property of the fixing member to glass is capable of transmitting the UV light to activate the UV cure adhesive. Examiner takes official notice that it is well known that glass is capable of transmitting the UV light to activate the UV cure adhesive.

Lam discloses using UV cure adhesive (Fig. 15, element 113) to attach a lens-and-frame assembly consisting of lens (Fig. 15, element 89) and frame (Fig. 15, element 91) to a lens shelf (Fig. 15, element 109, paragraph 0044).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the inventions of Anzai, Tomohiro, Lam, and Itabashi because doing so would allow transmitting the UV light to activate the UV cure adhesive in order to fix the support column with the optical housing when the support column is made of glass which is capable of transmitting the UV light.

With respect to **claim 6**, which further limits claim 1, it is analyzed and rejected for the same reason set forth in the rejections of claim 5. In addition,

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plastic is also well known to transmit the UV light to activate the UV cure adhesive.

With respect to **claim 7**, which further limits claim 5, it is analyzed and rejected for the same reason set forth in the rejection of claim 1.

With respect to **claim 8**, which further limits claim 6, it is analyzed and rejected for the same reason set forth in the rejection of claim 1.

9. Claims 3, 4, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anzai (5,877,903), Tomohiro (JP 04-265919), Lam (US 2002/0006687), and Itabashi (US 6,700,687) as applied to claims 1 and 5-8 above, and further in view of Tachibe et al. (US 6,449,107).

With respect to **claim 3**, which further limits claim 1, the combination of Anzai, Tomohiro, Lam and Itabashi fails to teach that the condensing lens and the fixing member include positioning units, wherein the positioning units of the condensing lens and the fixing member engaged with each other to thereby fix the condensing lens to the fixing member.

Tachibe et al. disclose a method to contact a substrate and a casing by using a positioning member (Fig. 2, elements 2, 13 and 12, col.7, 43-45).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the inventions of Anzai, Tomohiro, Lam, Itabashi, and Tachibe et al. because doing so would allow fixing a support column and a lens to be more easy and simple.

With respect to **claim 4**, which further limits claim 1, it is analyzed and rejected for the same reason set forth in the rejection of claim 3. Since the support column is capable of fixing the lens with positioning unit, it is capable of fixing the optical housing with positioning unit as well.

With respect to **claim 11**, which further limits claim 1, the combination of Anzai, Tomohiro, Lam and Itabashi fails to teach the image formation apparatus according to claim 1, the fixing member and the optical housing include holes so that the fixing member and the optical housing are fixed using screws.

Tachibe et al. disclose a method to fix two casings by using screws and both casings have holes to enable them to be fixed together with screws (Fig, 17-19, and col. 10, lines 17-39)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the inventions of Anzai, Tomohiro, Lam, Itabashi, and Tachibe et al., because doing so would allow fixing a support column and a lens to be more easy and simple.

With respect to **claim 12**, which further limits claim 1, the combination of Anzai, Tomohiro, Lam and Itabashi fails to teach that the fixing member includes a snap fastener made of plastic, the optical housing includes holes to engage the snap fastener.

Tachibe et al. disclose a method to fix two casings with a so-called snap fit mode and one of the casings have holes to enable the usage of the snap fit

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mode (Fig, 15, col. 10, lines 1-4). It is well known that snap fastener can be made of plastic.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the inventions of Anzai, Tomohiro, Lam, Itabashi, and Tachibe et al. because doing so would allow fixing a support column and a lens to be more easy and simple.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anzai (5,877,903), Tomohiro (JP 04-265919), Lam (US 2002/0006687), and Itabashi (US 6,700,687) as applied to claims 1 and 5-8 above, and further in view of Takayuki (JP 08-094956).

With respect to **claim 9**, which further limits claim 1, the combination of Anzai, Tomohiro, Lam and Itabashi fails to teach that a length of the fixing member is equal to or longer than one third of a length of the condensing lens, and the condensing lens is fixed to the fixing member such that the length of the fixing member is parallel to the length of the condensing lens.

Takayuki teaches a lens receiver which is interpreted as a fixing member and the lens receiver holds the lens (constitution). The length of the lens receiver is parallel to the length of the lens (Fig. 2). Comparing with the length of the lens (Fig.2 item 2) and the lens receiver (Fig.2 item 5), the length of the lens mount is longer than the length of the lens.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the inventions of Anzai, Tomohiro, Lam,

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Itabashi, and Takayuki because doing so would allow the lens to be held steadier by the lens receiver.

***Contact***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUO LONG CHEN whose telephone number is (571)270-3759. The examiner can normally be reached on 8:00am to 5:00pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark K. Zimmerman can be reached on (571)272-74653. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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